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A New Anthiine Fish, *Anthias truncatus*, from the Kerama Islands, Okinawa

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Abstract A new anthiine fish, *Anthias* (*Pseudanthias*) *truncatus* is described from the Kerama Islands, Okinawa. This new species differs from all other species of the genus in the combination of a truncate caudal fin with shortly produced outer rays in males, slightly lunate in females, a dark red blotch on basal portion of seventh to tenth dorsal spines in males, and a red spot on tip of each lobe of caudal fin in females.

The authors visited Zamami Island, the Kerama Islands, Okinawa for research on serranid fishes in June, 1982 and collected eleven small and colorful specimens of the Serranidae, subfamily Anthiinae. They are described as new in the present paper.

In the following description, data of paratypes, when different from those of the holotype, are given in parentheses. The length of the caudal peduncle was measured diagonally from the rear base of the anal fin to the midbase of the caudal fin. The last rays of the dorsal and anal fins were counted as one when branched to the base. Sex was determined by dissecting the abdomen. Counts for vertebrae and predorsal bones were made by using radiographs.

Type specimens are deposited in the Department of Zoology, National Science Museum, Tokyo (NSMT-P).

Anthias* (*Pseudanthias*) *truncatus sp. nov.
(New Japanese name: Kerama-hanadai)
(Figs. 1～3)

Pseudanthias sp. Masuda, 1979: 7.
Anthias sp. A Allen and Starck, 1982: 54, figs. 23～24.

Holotype. NSMT-P 21793, 77 mm SL, male, collected by H. Masuda on June 22, 1982, at a depth of 18 m, Zamami Island, Kerama Islands.

Paratypes. NSMT-P 21794, 87 mm SL, NSMT-P 21795, 91 mm SL, NSMT-P 21796, 82 mm SL, male; NSMT-P 21797, 76 mm SL, NSMT-P 21798, 73 mm SL, NSMT-P 21799, 71 mm SL, NSMT-P 21800, 67 mm SL, NSMT-P 21801, 69 mm SL, NSMT-P 21802, 63 mm SL, NSMT-P 21803, 62 mm SL, female, collected with holotype.

Diagnosis. Dorsal rays X, 16; anal rays III, 7; pectoral rays 18～20; lateral-line scales 44～46, 3 scale rows between middle of spinous dorsal and lateral line; gill rakers 11～13+26～29; body depth 2.71～3.22 in SL; head length 3.05～3.42 in SL; front of upper lip of male not thickened and pointed; no papillae along rim of posterior half of eye; subopercle and interopercle slightly serrate; third dorsal spine not elongate; caudal truncate with shortly produced outer rays in male, slightly lunate in female; spinous dorsal fin not scaled; predorsal bones 3; color pattern in life described below.

Description. Dorsal fin rays X, 16; anal fin rays III, 7; pectoral fin rays 19 (18～20), upper two and lowermost unbranched; pelvic fin rays I. 5; branched caudal fin rays 13; lateral-line scales 45 (44～46); gill rakers on first arch 12+27 (11～13+26～29); vertebrae 10+16; predorsal bones 3.

Body elongate, compressed; greatest body depth 2.75 (2.71～3.22) in SL; width just behind gill opening 5.92 (5.07～6.38) in SL; dorsal and ventral contours evenly and gently curved; head length 3.18 (3.05～3.42) in SL; snout 4.17 (4.00～5.50) in head; diameter of orbit 4.32 (3.60～4.83 in head); no papillae along rim of posterior half of eye; interorbital space convex and slightly broader than eye diameter, 3.46 (3.16～3.67) in head; length of caudal peduncle 1.34 (1.20～1.42) in head; depth of the same 2.30 (2.18～2.50).

Mouth oblique and moderately large; lower jaw slightly projecting when mouth closed; upper jaw length 2.28 (2.15～2.51) in head; maxilla expanding distally, reaching below middle of orbit, its greater depth 1.12 (1.12～1.33) in orbit; no supramaxilla. Nostrils close togeth-

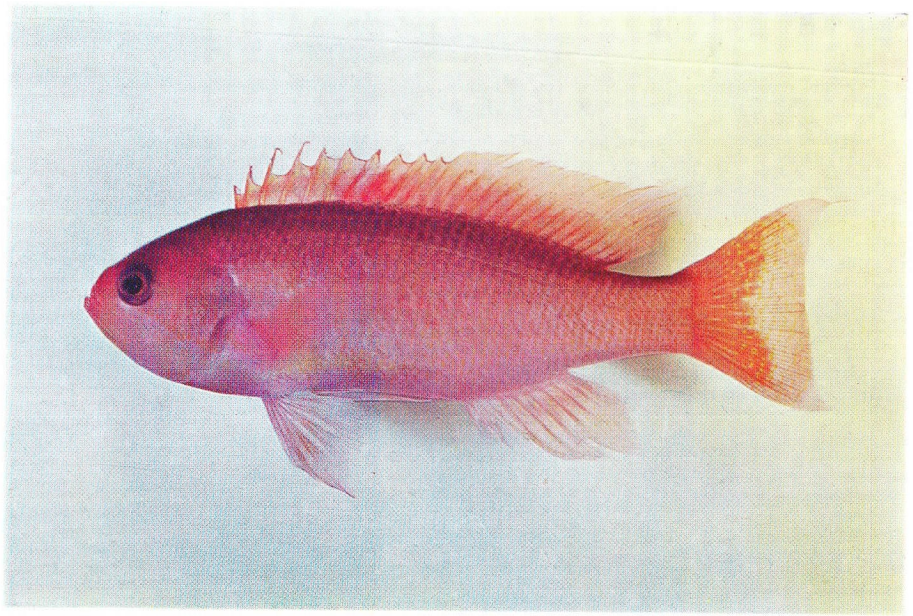

Fig. 1. *Anthias truncatus* sp. nov., holotype, male, 77 mm SL, NSMT-P 21793, Zamami Island, Okinawa.

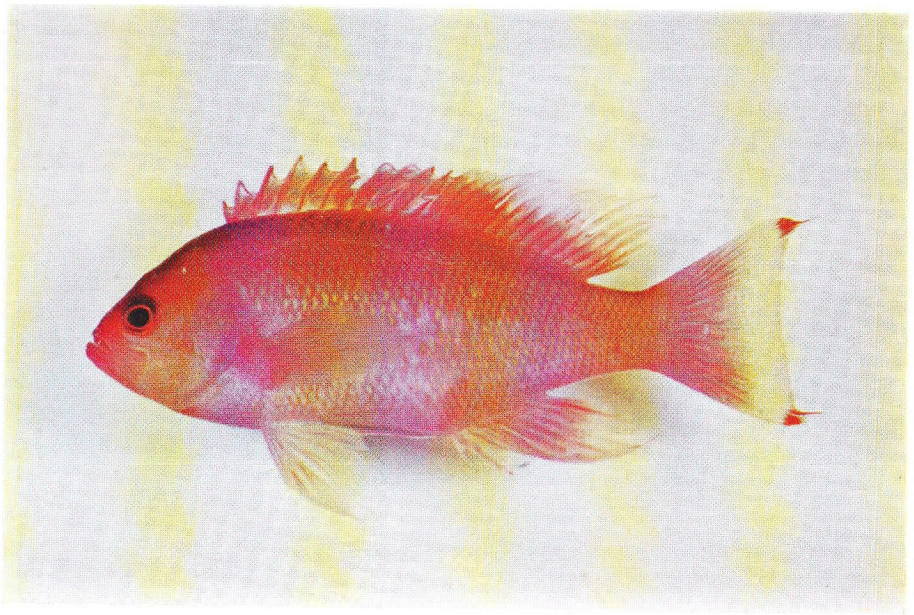

Fig. 2. *Anthias truncatus* sp. nov., paratype, female, 69 mm SL, NSMT-P 21801, Zamami Island, Okinawa.

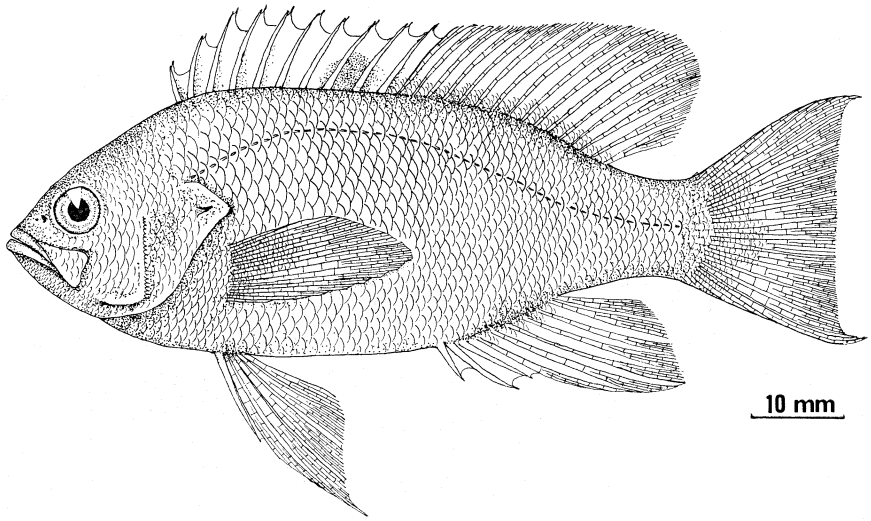

Fig. 3. *Anthias truncatus* sp. nov., holotype, male, 77 mm SL, NSMT-P 21793, Zamami Island, Okinawa.

er, directly in front of eye; anterior nostril in short tube with a produced posterior flap; posterior one larger, ovoid in shape. Teeth on upper jaw in two series, an outer one enlarged, inner one minute; a pair of canines on tip of upper jaw, and posteriorly another pair of canines directed backward pointing towards the vomer; lower jaw with a band of enlarged teeth; a pair of canines on tip of lower jaw, and posteriorly a canine on each side; vomer and palatines with narrow band of teeth; vomerin patch broadly V-shaped; tongue smooth. Preopercle subangular, ca. 38 serrae on upper edge, those at angle slightly larger; lower edge of preopercle feebly serrate; opercle with three flattened spines, the upper one obtuse and inconspicuous, the middle one longest; subopercle and interopercle with a few serrae. Gill rakers numerous, much longer than gill filaments.

Dorsal fin unnotched, inserted slightly anterior to upper end of gill opening; no dorsal spine prolonged; longest (6th) dorsal spine 2.63 (2.23～3.00) in head; a small cirrus behind tip of each dorsal spine; longest (13th) dorsal soft ray 1.70 (1.39～2.05) in head; anal fin originating below the base of third dorsal soft ray; length of first anal spine 6.05 (4.33～7.25), second anal spine 2.42 (2.20～2.64), third anal spine 2.55 (2.35～2.89) and longest (3rd) anal soft ray 1.40 (1.21～1.51) in head; posterior tip of dorsal fin round, anal fin acute. Pectoral fin subsymmetrical, shorter than head, reaching vertical through anal fin origin; its length 3.58 (3.23～4.06) in SL; the rays mostly branched. Pelvic fin inserted slightly anterior to lower base of pectoral, second ray slightly prolonged, its length 3.74 (3.25～3.95) in SL; caudal fin truncate with shortly produced outer rays (slightly lunate in female).

Scales rather large, ctenoid; 5 in a series from origin of dorsal to lateral line, 3 in a series from middle of spinous dorsal to lateral line and 19 (18～19) from origin of anal to lateral line; head closely scaled except for lips; soft dorsal and anal covered with small scales basally. Lateral line normally curved, nearly concurrent with back and extending along middle of caudal peduncle to base of caudal fin.

Color of holotype and other large males when fresh: Body red dorsally and pale red ventrally; a white oblique line extends from lower margin of eye to the middle part of pectoral base, lower part of the line yellow; a red line on isthmus; dorsal and anal red, a dark red blotch on basal portion of seventh to tenth dorsal spines; caudal red with small white spots, its margin about equal to eye diameter pale; anal, pectoral and pelvic fins pale red.

Color of female when fresh: Body yellowish red, ventrally pale red; a white oblique line from lower margin of eye extending to base of pectoral fin, lower part of the line white. Dorsal and anal fins red; caudal fin yellowish red with small white spots, its margin pale, sometimes edged with red; tip of each lobe of caudal fin with a

red spot; pectoral and pelvic fins pale red.

Color in formalin: light brown dorsally, other part pale yellowish; in male an obscure dark blotch on basal portion of seventh to tenth dorsal spines.

Sexual dimorphism. Four specimens (NSMT-P 21793, NSMT-P 21794, NSMT-P 21795 and NSMT-P 21796) are male and seven specimens (NSMT-P 21797, NSMT-P 21798, NSMT-P 21799, NSMT-P 21800, NSMT-P 21801, NSMT-P 21802 and NSMT-P 21803) are female. These show the following differences between sexes: (1) the body size of males (four mature males, 77 mm ~91 mm SL) is larger than females (seven mature females, 62 mm~76 mm SL); (2) caudal fin truncate with shortly produced outer rays in males, slightly lunate in females; (3) when fresh, male body color red, with a dark red blotch on basal portion of seventh to tenth dorsal spines; in the female, body yellowish red; tips of upper and lower lobes of caudal fin with a red spot. The size-sex distribution implies a possible protogynous mode of reproduction like *Sacura margaritacea*. The sex reversal in this species probably takes place in the range 75 mm~80 mm SL.

Remarks. The present new species, *Anthias truncatus*, is closely related to *Anthias cichlops* (Bleeker, 1853), but differs from it in not having prolonged outer rays of caudal fin and different coloration. *A. truncatus* is also similar to *A. taeniatus* (Klunzinger, 1884) except the following: (1) the former has fewer lateral-line scales (44~46 instead of 47~50) but has more predorsal bones (3 instead of 2), (2) the male of the former possesses a truncate caudal fin but the other has a lunate caudal fin, (3) their coloration is different.

Franz (1910) described Serranidae nov. spec. by showing a picture in which two fishes of the species, swimming around *Tubastrea aurea* (Quoy et Gaimard), are drawn from specimens collected by F. Doflein at a depth of about 15 m on the rocky reef off Aburatsubo, Misaki, Japan (Taf. 1, Fig. 1). But he could not examine these specimens because they had been lost in the Munich Museum. From the illustration (Taf. 1, Fig. 1), they resemble the female of the present new species or that of *Anthias cichlops* (Bleeker) in the shape of their body and caudal fin and in the existence of red spots on the tip of upper and lower lobes of their caudal fin. As the present species is distributed more south (the Kerama Islands) than *A. cichlops* (Sagami Bay; Katayama 1960), the specimens from Aburatsubo (F. Doflein) seem to be females of *A. cichlops*.

Acknowledgment

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(MK: ; HM:)

沖縄座間味島から得られた新種ケラマハナダイ

片山正夫・益田 一

沖縄慶良間列島座間味島の水深 18 米の岩礁地帯から得られたハタ科ハナダイ亜科の新種ケラマハナダイ *Anthias* (*Pseudanthias*) *truncatus* を記載した．本種は雄の尾鰭が截形で，背鰭第 7 棘から第 10 棘の基底部に 1 個の暗赤色斑紋があり，雌の尾鰭後縁はわずかに湾入し，上下両葉の先端部に 1 個の赤色点があることなどで同属の既知種と識別される．

(片山: ; 益田:)